**The study on effects of antiepileptic drugs such as phenytoin, phenobarbital, topiramate, valproate on nerve conduction velocity in children under treatment of AEDs.**

**Background & Objective**: Anticonvulsants such as phenytoin, phenobarbital, topiramate, valproate are an important step in the treatment of epilepsy, which are more likely to be used due to their beneficial effects and economic benefits from new drugs, but these old anti-seizure drugs are not harmless and have dangerous and sometimes safe and reversible side effects. reduction of the nervous conduction velocity is the common side effect among anticonvulsants drugs. If this complication is severe, it is of great clinical significance. Especially in children who need attention in clinical use by the therapist. Therefore, it is necessary to evaluate the effect of each anticonvulsant drug on the neurotransmission rate and compare them.

**Methods**: 125 known patients with seizure were randomly categorized into 5 groups of 25, and each group received phenytoin, phenobarbital, topiramate, valproate and carbamazepine. We used a group of 25 patients with febrile convulsion as a control group. Sensory and motor neural conduction velocity were recorded from each measured patient.

**Results:** Anticonvulsant drugs all reduced the sensory nervous conduction velocity in patients and compared with drugs, the general drugs had a similar effect, but phenobarbital lowered the neurotransmission rate than the rest, and phenotypine had neuropathic complications more than other drugs. The changes mentioned were not related to the age and gender of the patients.

**Conclusion:** anticonvulsants such as phenytoin, phenobarbital, topiramate, valproate reduced the sensory neural conduction velocity in patients. The changes mentioned were not related to the age and gender of the patients

**Keywords**: Seizure, anticonvulsant drug, nerve conduction velocity, deep tendon reflex